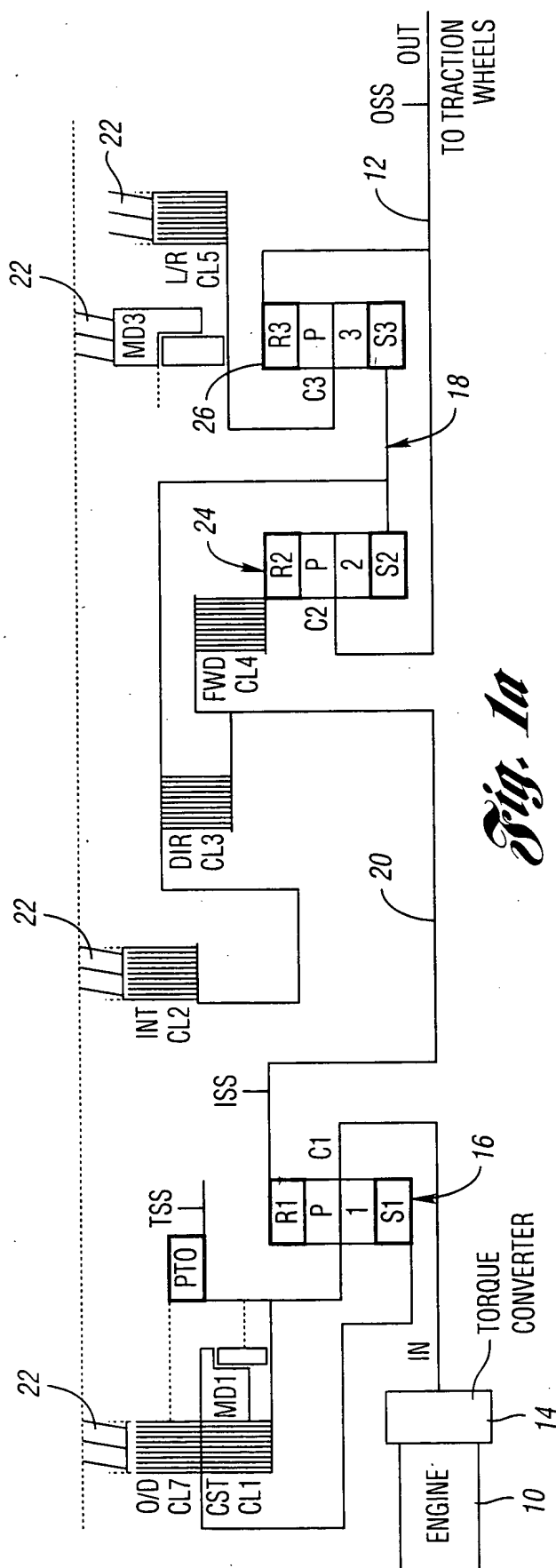
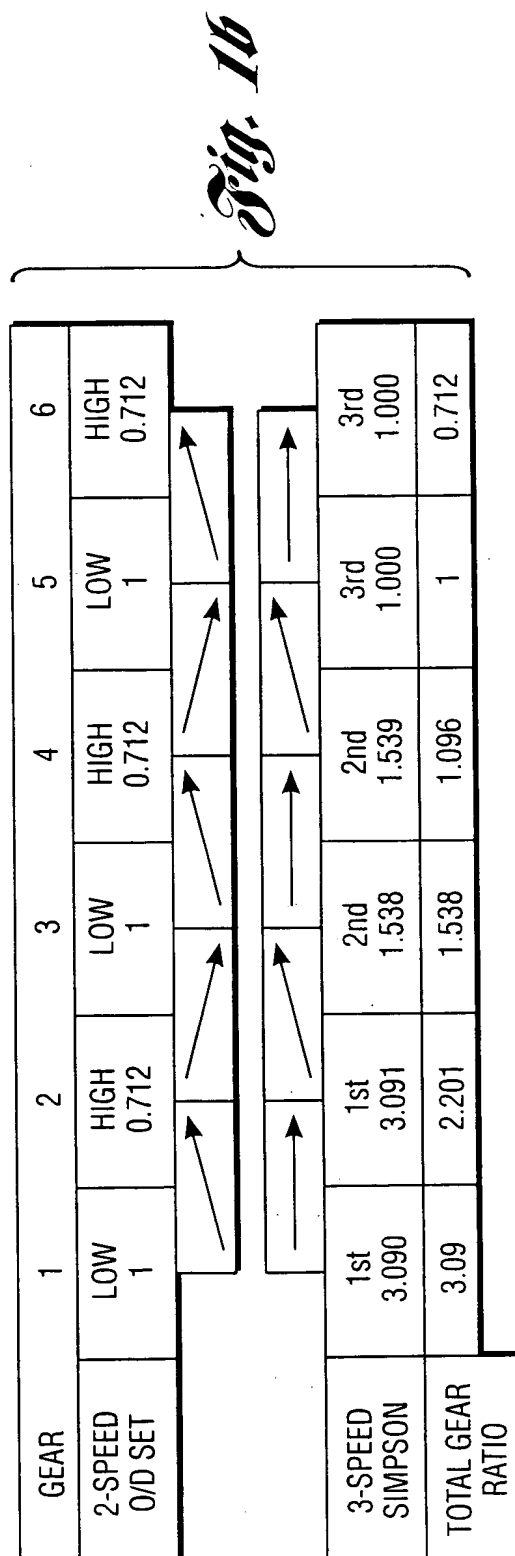


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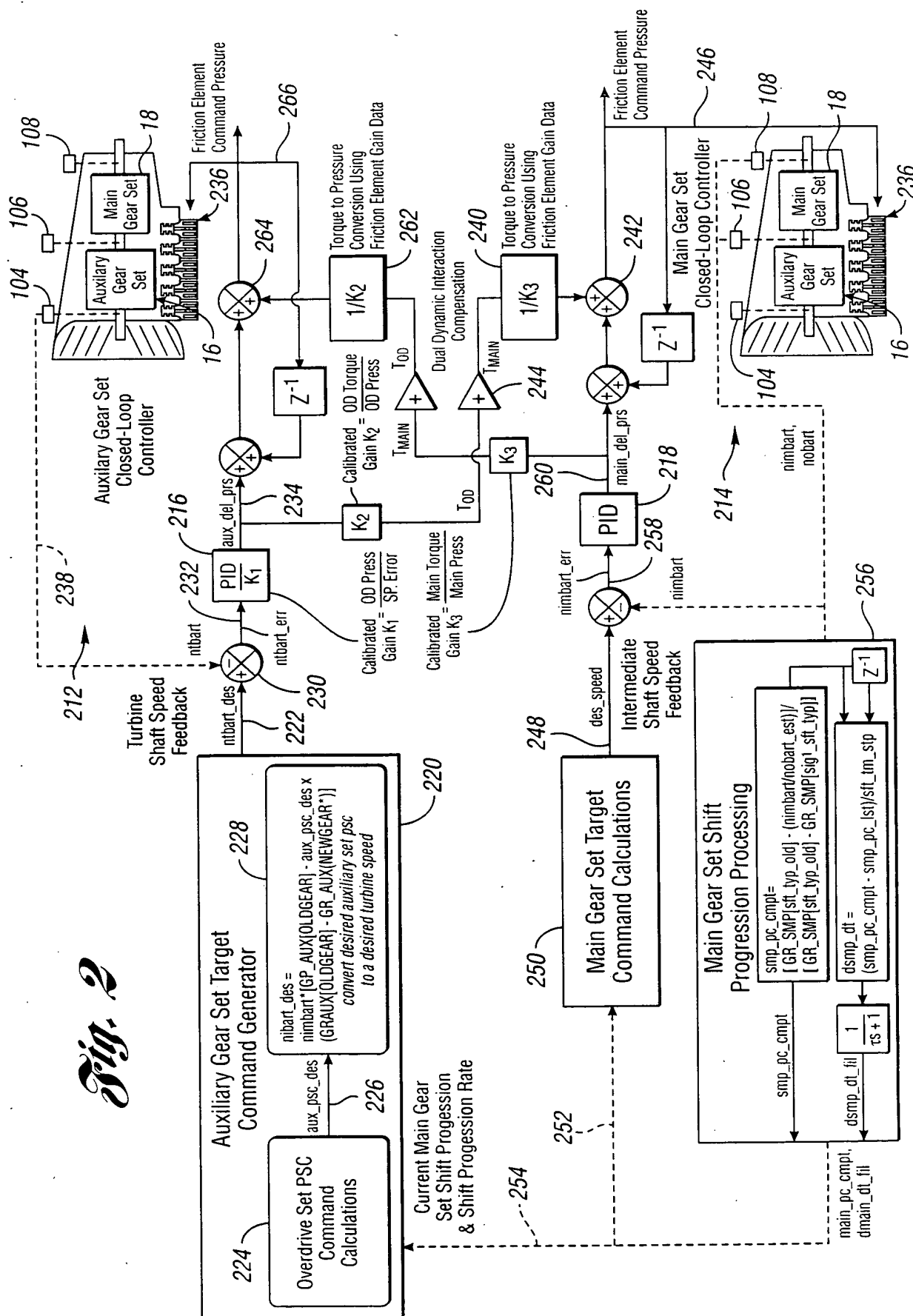
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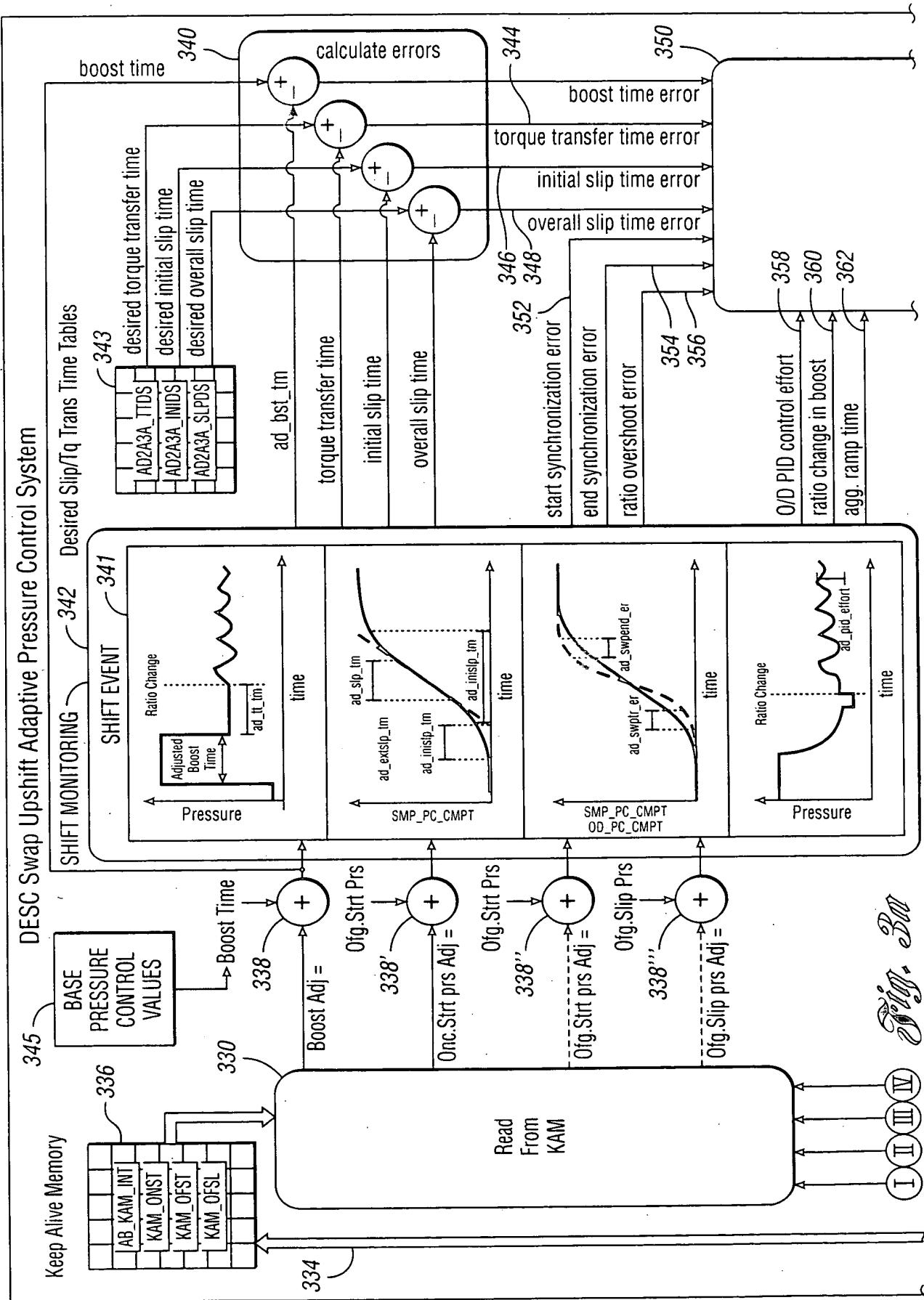


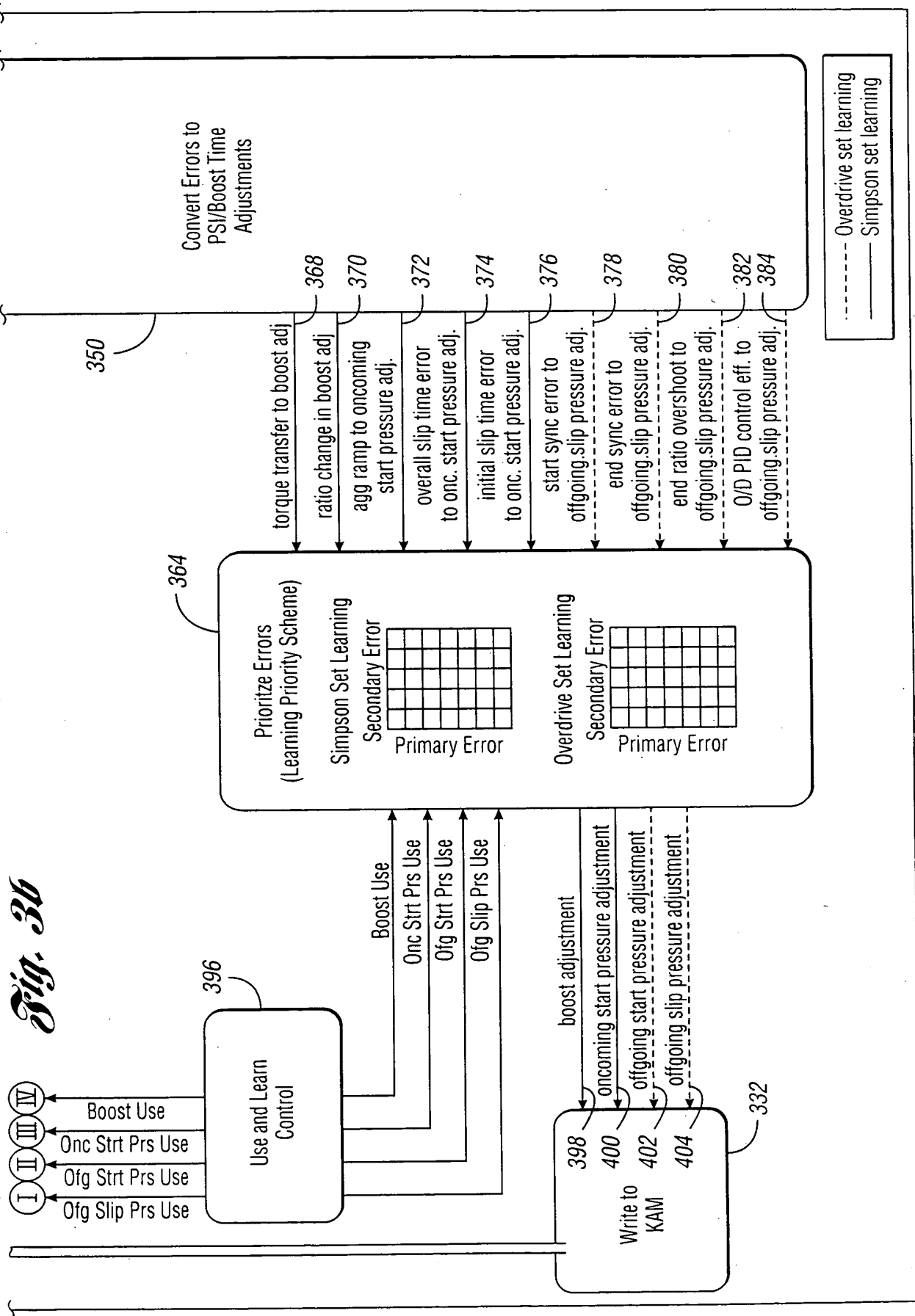
# Sig. la

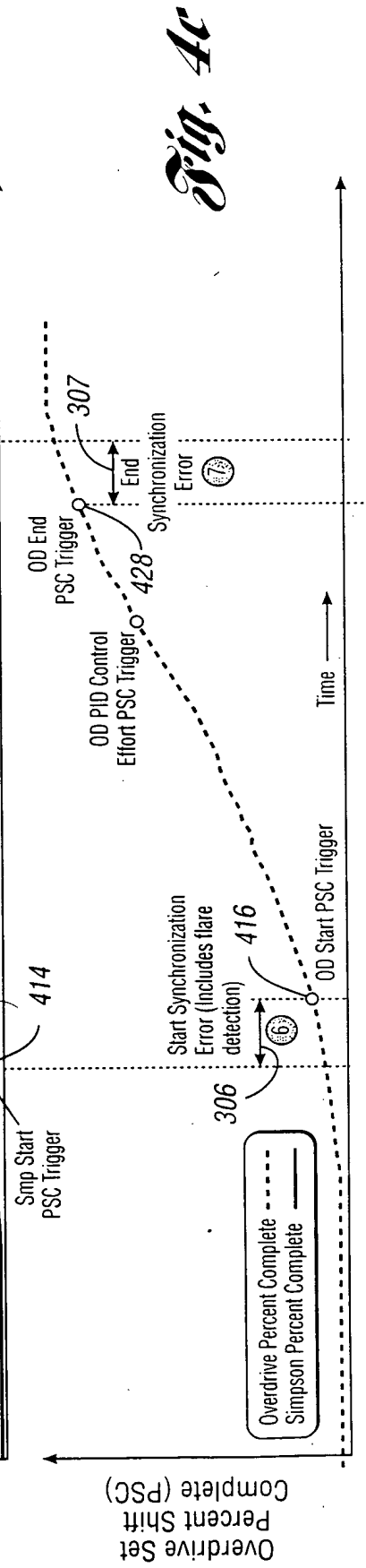
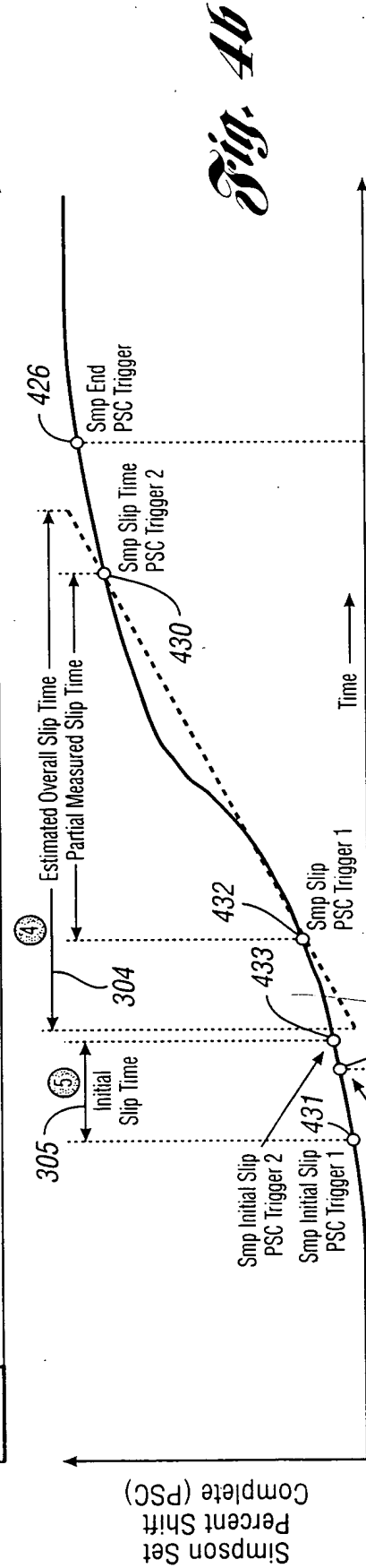
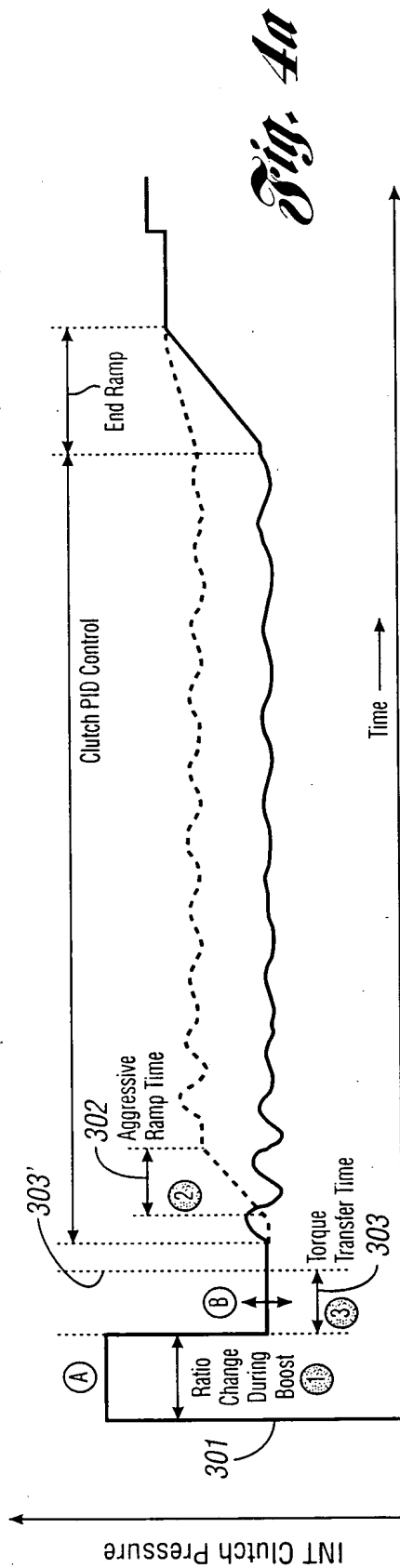


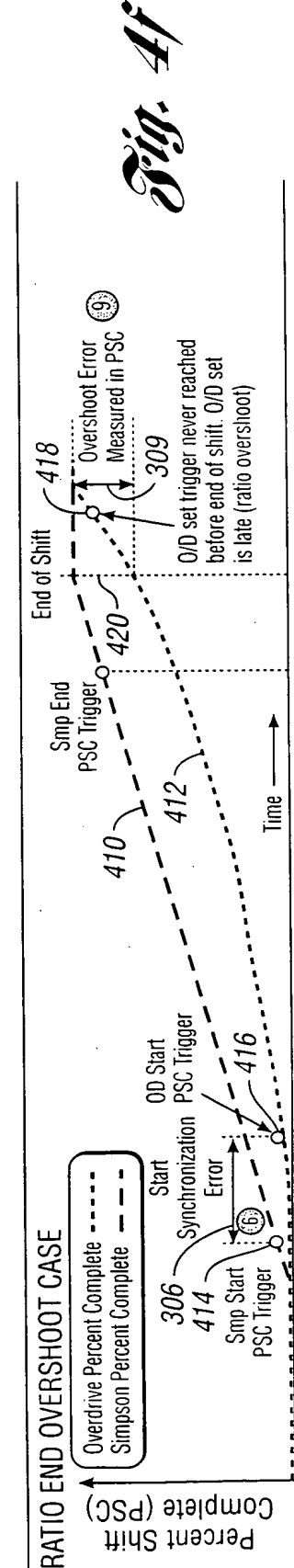
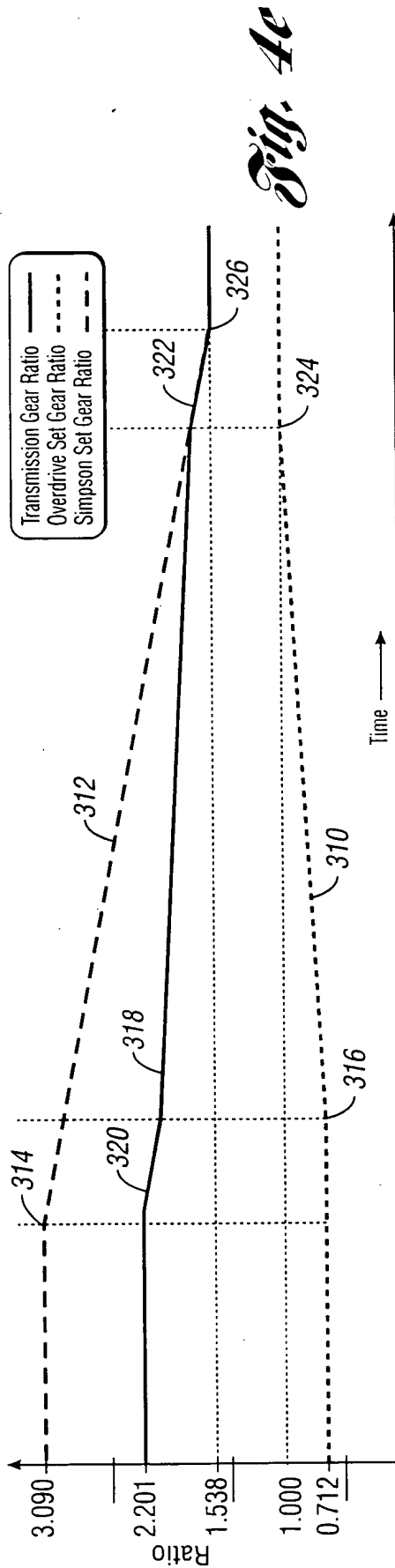
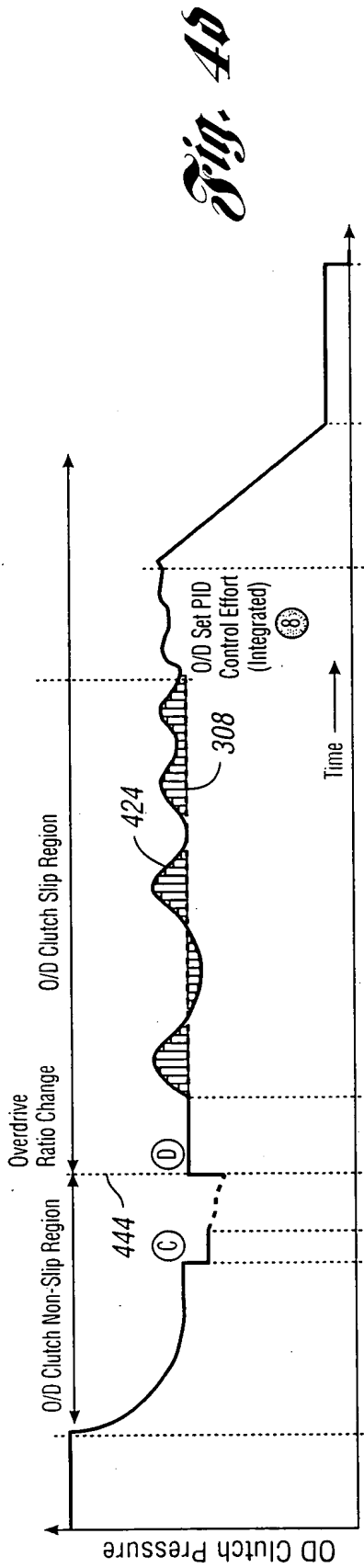
*Fin. 16*







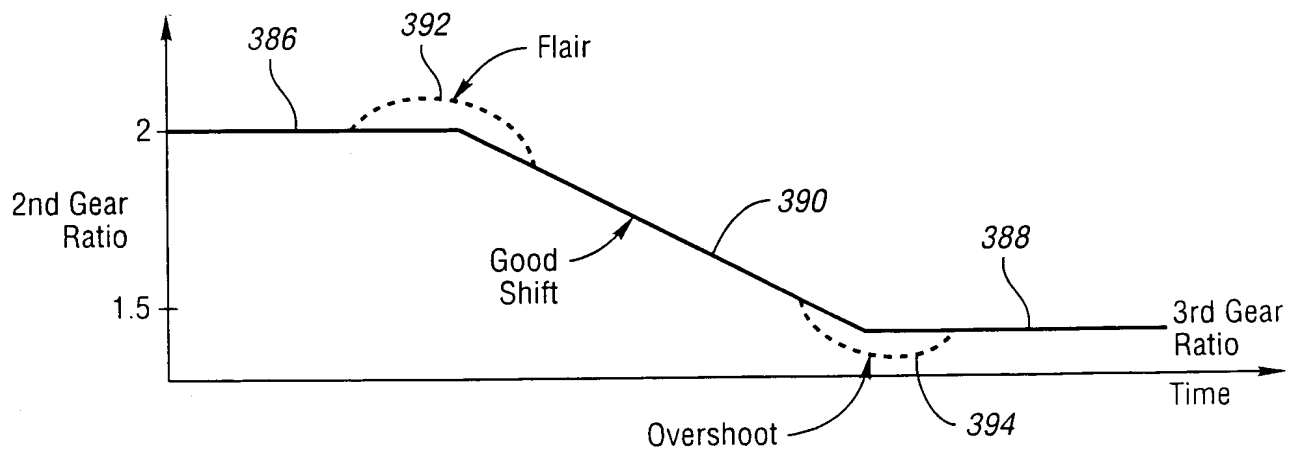




Simpson Gearset Swap-Upshift Adaptive Priority Learning Scheme -  
Secondary Conditions Detected

	① Ratio Change During Boost	② Aggressive Ramp Reached	③ Torque Transfer Time Error	④ Overall Slip Time Error	⑤ Initial Slip Time Error
① Ratio Change During Boost	Adapt (A) for: ①	Adapt (A) for: ①	Adapt (A) for: ①	Adapt (A) for: ①	Adapt (A) for: ①
② Aggressive Ramp Reached	Adapt (A) for: ①	Adapt (B) for: ②	Adapt (B) for: ②	Adapt (B) for: ②	Adapt (B) for: ②
③ Torque Transfer Time Error	Adapt (A) for: ①	Adapt (B) for: ②	Adapt (A) for: ③	If ITT error large, adapt (A) for ③ else adapt (A) for ③ & adapt (B) for ④	If ITT error large, adapt (A) for ③ else adapt (A) for ③ & adapt (B) for ⑤
④ Overall Slip Time Error	Adapt (A) for: ①	Adapt (B) for: ②	If ITT error large, adapt (A) for ③ else adapt (A) for ③ & adapt (B) for ④	Adapt (B) for: ④	Adapt (B) for: ④
⑤ Initial Slip Time Error	Adapt (A) for: ①	Adapt (B) for: ②	If ITT error large, adapt (A) for ③ else adapt (A) for ③ & adapt (B) for ⑤	Adapt (B) for: ④	Adapt (B) for: ⑤

*Fig. 5a*



*Fig. 6*

# Title: An Electronic Adaptive Swap-Shift Control for an Automatic Transmission for Automotive Vehicles

First Named Inventor: Ihab Soliman  
Atty. Docket No.: FMC1624PUS/202-1442

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## Overdrive Swap-Shift Adaptive Priority Learning Scheme - Secondary Conditions Detected

① Simpson Set Ratio Change During Boost	② Simpson Set Aggressive Ramp Reached	③④⑤ All Other Significant Simpson Set Adaptation On: (A) (B)	③④⑤ All Other Minimal Simpson Set Adaptation On: (A) (B)	⑥ Start Synchronization Error (includes flare detection)	⑨ Overshoot Error Measured in PSC	⑦ End Synchronization Error	⑧ O/D Set PID Control Effort (Integrated)
Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (A) for: ①
No O/D set Learn Adapt (A) for: ①	Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②	No O/D set Learn Adapt (B) for: ②
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤	Simpson Set: Adapt (A) (B) for ③④⑤	Simpson Set Still Significantly Adapting, No Overdrive set Adaptation Adapt (A) (B) for ③④⑤ See Simpson Set Priority Scheme			
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤	Simpson Set: Adapt (A) (B) for ③④⑤	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (D) for ⑨	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (D) for ⑨	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (D) for ⑨
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Adapt (C) for: ⑥	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)	Adapt (D) for: ⑨	Adapt (D) for: ⑨	Adapt (D) for: ⑨
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)	Adapt (D) for: ⑨	Adapt (D) for: ⑨	If end sync error large, adapt (D) for (9) else adapt (D) for (9)
No O/D set Learn Adapt (A) for: ①	No O/D set Learn Adapt (B) for: ②	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	Simpson Set: Adapt (A) (B) for ③④⑤ Set: Adapt (C) for ⑥	If start sync error large, (C) apt (E) for (6) else adapt (C) for (6) & adapt (D) for (9)	Adapt (D) for: ⑨	If end sync error large, adapt (D) for (9) else adapt (D) for (9)	Adapt (D) for: ⑨

*Fig. 5B*

① Simpson Set Ratio Change During Boost

② Simpson Set Aggressive Ramp Reached

③④⑤ All Other Significant Simpson Set Adaptation On: (A) (B)

③④⑤ All Other Minimal Simpson Set Adaptation On: (A) (B)

⑥ Start Synchronization Error (includes flare detection)

⑨ Overshoot Error Measured in PSC

⑦ End Synchronization Error

⑧ O/D Set PID Control Effort (Integrated)

Primary Conditions Detected